HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P. O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 200312380-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): John Grebenkemper et al. **Confirmation No.:**

Application No.: **Examiner:**

Filing Date: April 9, 2004 **Group Art Unit:**

Title: MULTI-LAYER PRINTED CIRCUIT BOARDS

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

This Information Disclosure Statement is submitted:

(X) under 37 CFR 1.97(b), or
(Within three months of filing national application; or date of entry of national application; or before mailing date of first office action on the merits; whichever occurs last)

( ) under 37 CFR 1.97(c) together with either a:
( ) Statement under 37 CFR 1.97(e), or
( ) a $180.00 fee under 37 CFR 1.17(p), or
(After the CFR 1.97 (b) time period, but before final action or notice of allowance, whichever occurs first)

( ) under 37 CFR 1.97 (d) together with a:
( ) Statement under 37 CFR 1.97(e)(1) or (2), and
( ) a $180.00 fee set forth in 37 CFR 1.17(p).
(Filed after final action, a notice of allowance, on or before payment of the issue fee)

Please charge to Deposit Account **08-2025** the sum of $0.00 . At any time during the pendency of this application, please charge any fees required or credit any overpayment to Deposit Account **08-2025** pursuant to 37 CFR 1.25.

(X) Applicant(s) submit herewith Form PTO 1449 - Information Disclosure Statement together with any required copies of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.56.

( ) A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individuals(s) designated in 37 CFR 1.56 (c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on form PTO 1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

"Express Mail" label no. **ER616766365US**

Date of Deposit **April 9, 2004**

I hereby certify that this is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Commissioner for Patents, Alexandria, VA 22313-1450.

By _____

Typed Name: **Joy C. Ngo**

Respectfully submitted,

John Grebenkemper et al.

By _____

Mary Jo Bertani

Attorney/Agent for Applicant(s)
Reg. No. **42,321**

Date: **April 9, 2004**

Telephone No.: **(949) 251-0250**

FORM PTO-1449 LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. 200312380-1	APPLICATION NO.	CONFIRMATION NO.
	APPLICANT Grebenkemper, John		
	FILING DATE April 9, 2004	GROUP	

REFERENCE DESIGNATION **U.S. PATENT DOCUMENTS**

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
	1A	5,065,284	11-12-1991	Hernandez	
	1B	5,246,817	09-21-1993	Shipley, Jr.	
	1C	6,444,922 B1	09-03-2003	Kwong	
	1D				
	1E				
	1F				
	1G				
	1H				
	1I				
	1J				
	1K				

FOREIGN PATENT DOCUMENTS

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	1L					
	1M					
	1N					
	1O					
	1P					

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

	1Q	Eric BENEDICT, PCB DESIGN FOR EMI/EMC COMPLIANCE, July 21, 2000, WEMPEC Seminar, pp 0-48.
	1R	PCBs, EE6471 (KR), November 12, 2002, pp. 259-286.
	1S	PROTO CIRCUIT INC., MULTILAYER PRINTED CIRCUIT BOARD PRIMER.

EXAMINER	DATE CONSIDERED

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	2L					
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	2N					
	2O					
	2P					

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

	2Q	Mehdi M. MECHAIK, Ph.D., EFFECTS OF PACKAGE STACKUPS ON MICROPROCESSOR PERFORMANCE, pp. 1-7, Computer Aided Engineering & PCB Design Cisco Systems, San Jose, CA.
	2R	Minjia XU, Yun JI, Todd H. HUBING, Thomas P. VAN DOREN, James L. DREWNIAK, DEVELOPMENT OF A CLOSED-FORM EXPRESSION FOR THE INPUT IMPEDANCE OF POWER-GROUND PLANE STRUCTURES, IEEE, 2000, PP. 77-82.
	2S	John B. HOWARD, PCB DESIGN FOR EMC CONTROL CLOCKS AND POWER PLANES, pp. 5B-1 - 5b-13, IEEE Santa Clara Valley EMC '94.

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OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

	3Q	Jason CONG, Patrick H. MADDEN, PERFORMANCE DRIVEN MULTI-LAYER GENERAL AREA ROUTING FOR PCB/MCM DESIGNS, pp. 356-361.
	3R	Jiunn-Nan HWANG, Tzong-Lin WU, COUPLING OF THE GROUND BOUNCE NOISE TO THE SIGNAL TRACE WITH VIA TRANSITION IN PARTITIONED POWER BUS OF PCB, PP. 733-736, IEEE 2002.
	3S	Jun FAN, James L. KNIGHTEN, Norman W. SMITH, Ray ALEXANDER, THE EFFECTS OF SIGNAL LAYER POSITIONS IN MULTI-LAYER PCB DESIGNS, PP. 320-324, IEEE 2002.

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	4P					

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

	4Q	Minjia XU, Todd H. HUBING, Juan CHEN, Thomas P. VAN DOREN, James L. DREWNIAK, Richard E. DUBROFF, POWER-BUS DECOUPLING WITH EMBEDDED CAPACITANCE IN PRINTED CIRCUIT BOARD DESIGN, pp. 22-30, IEEE 2003, Vol. 45, No. 1, Feburary 2003.
	4R	Sean MERCER, Ph.D., C. Eng., MINIMIZING RF PCT ELECTROMAGNETIC EMISSIONS, pp. 46, 48, 55-56, www.rfdesign.com, January 1999.
	4S	Dallas A. DEAN, SILIENCE IS GOLDEN 8 WAYS TO REDUCE NOISE ON YOUR NEXT PCB, pp. 15-17, CMP Media LLC, January 1999.

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